Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #17 Alcosta/Norris

Cycle (sec):	100	Critical Vol./Cap.(X):	0.534
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	49	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	2 0	1	2 0	1 0	1	1 0	1 0	1
Volume Module:												
Base Vol:	125	548	35	76	356	127	374	77	158	44	138	139
Growth Adj:	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	152	665	42	92	432	154	454	93	192	53	167	169
Added Vol:	0	36	0	0	19	0	0	0	0	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	152	701	42	92	451	154	454	93	192	53	167	169
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	152	701	42	92	451	154	454	93	192	53	167	169
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	152	701	42	92	451	154	454	93	192	53	167	169
RTOR Reduct:	0	0	0	0	0	154	0	0	152	0	0	92
RTOR Vol:	152	701	42	92	451	0	454	93	40	53	167	76
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	152	701	42	92	451	0	454	93	40	53	167	76
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.89	0.11	1.00	2.00	1.00	2.00	1.00	1.00	1.00	1.00	1.00
Final Sat.:	1650	3111	189	1650	3300	1650	3000	1650	1650	1650	1650	1650
Capacity Analysis Module:												
Vol/Sat:	0.09	0.23	0.23	0.06	0.14	0.00	0.15	0.06	0.02	0.03	0.10	0.05
Crit Vol:			372	92			227				167	
Crit Moves:			****	****			****				****	

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #18 San Ramon/Norris

Cycle (sec):	100	Critical Vol./Cap.(X):	0.684
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	72	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 2 0 1			2 0 1 1 0			1 0 1 1 0			1 0 1 0 1		
Volume Module:												
Base Vol:	100	300	100	150	300	100	100	200	100	250	500	350
Growth Adj:	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	121	364	121	182	364	121	121	243	121	303	607	425
Added Vol:	0	19	0	0	13	0	0	27	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	121	383	121	182	377	121	121	270	121	303	637	425
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	121	383	121	182	377	121	121	270	121	303	637	425
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	121	383	121	182	377	121	121	270	121	303	637	425
RTOR Reduct:	0	0	121	0	0	0	0	0	0	0	0	100
RTOR Vol:	121	383	0	182	377	121	121	270	121	303	637	324
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	121	383	0	182	377	121	121	270	121	303	637	324
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	2.00	1.00	2.00	1.51	0.49	1.00	1.38	0.62	1.00	1.00	1.00
Final Sat.:	1650	3300	1650	3000	2497	803	1650	2276	1024	1650	1650	1650
Capacity Analysis Module:												
Vol/Sat:	0.07	0.12	0.00	0.06	0.15	0.15	0.07	0.12	0.12	0.18	0.39	0.20
Crit Vol:	121					249	121				637	
Crit Moves:	****					****	****				****	

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #19 Bollinger/Crow

Cycle (sec):	100	Critical Vol./Cap.(X):	0.588
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	45	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Permitted			Permitted			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 1	0 1		0 0 1!	0 0		1 0 2	0 1		1 0 2	0 1	
Volume Module:												
Base Vol:	181	32	52	30	36	8	16	825	142	90	1004	29
Growth Adj:	1.23	1.23	1.23	1.23	1.23	1.23	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	223	39	64	37	44	10	19	1001	172	109	1218	35
Added Vol:	46	0	0	0	0	0	0	40	40	0	46	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	269	39	64	37	44	10	19	1041	212	109	1264	35
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	269	39	64	37	44	10	19	1041	212	109	1264	35
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	269	39	64	37	44	10	19	1041	212	109	1264	35
RTOR Reduct:	0	0	64	0	0	0	0	0	212	0	0	35
RTOR Vol:	269	39	0	37	44	10	19	1041	0	109	1264	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	269	39	0	37	44	10	19	1041	0	109	1264	0
Saturation Flow Module:												
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.00	1.00	0.40	0.49	0.11	1.00	2.00	1.00	1.00	2.00	1.00
Final Sat.:	1720	1720	1720	697	837	186	1720	3440	1720	1720	3440	1720
Capacity Analysis Module:												
Vol/Sat:	0.16	0.02	0.00	0.05	0.05	0.05	0.01	0.30	0.00	0.06	0.37	0.00
Crit Vol:	269				91		19				632	
Crit Moves:	****				****		****				****	

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #20 Dougherty/Bollinger

Cycle (sec):	100	Critical Vol./Cap.(X):	0.636
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	63	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	3 0	1	2 0	3 0	1	2 0	3 0	1	2 0	3 0	1
Volume Module:												
Base Vol:	127	985	164	346	560	354	468	1092	193	115	469	451
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	127	985	164	346	560	354	468	1092	193	115	469	451
Added Vol:	21	0	0	0	0	18	23	176	25	0	145	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	148	985	164	346	560	372	491	1268	218	115	614	451
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	148	985	164	346	560	372	491	1268	218	115	614	451
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	148	985	164	346	560	372	491	1268	218	115	614	451
RTOR Reduct:	0	0	63	0	0	270	0	0	81	0	0	190
RTOR Vol:	148	985	101	346	560	102	491	1268	137	115	614	261
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	148	985	101	346	560	102	491	1268	137	115	614	261
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Lanes:	2.00	3.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00	2.00	3.00	1.00
Final Sat.:	3000	4950	1650	3000	4950	1650	3000	4950	1650	3000	4950	1650
Capacity Analysis Module:												
Vol/Sat:	0.05	0.20	0.06	0.12	0.11	0.06	0.16	0.26	0.08	0.04	0.12	0.16
Crit Vol:		328		173			246					261
Crit Moves:		****		****			****					****

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #21 San Ramon/Montevideo

Cycle (sec):	100	Critical Vol./Cap.(X):	0.892
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	180	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0	1 1	0	1 0	2 0	0	0 0	0 0	0	1 0	0 0	1
Volume Module: 5:00 To 6:00												
Base Vol:	0	705	345	583	946	0	0	0	0	172	0	643
Growth Adj:	1.22	1.22	1.22	1.18	1.26	1.22	1.22	1.22	1.22	1.09	1.18	1.18
Initial Bse:	0	859	421	688	1189	0	0	0	0	187	0	756
Added Vol:	0	12	0	12	13	0	0	0	0	0	0	11
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	0	871	421	700	1202	0	0	0	0	187	0	767
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	871	421	700	1202	0	0	0	0	187	0	767
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	871	421	700	1202	0	0	0	0	187	0	767
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	700
RTOR Vol:	0	871	421	700	1202	0	0	0	0	187	0	67
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	871	421	700	1202	0	0	0	0	187	0	67
Saturation Flow Module:												
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.35	0.65	1.00	2.00	0.00	0.00	0.00	0.00	1.00	0.00	1.00
Final Sat.:	0	2320	1120	1720	3440	0	0	0	0	1720	0	1720
Capacity Analysis Module:												
Vol/Sat:	0.00	0.38	0.38	0.41	0.35	0.00	0.00	0.00	0.00	0.11	0.00	0.04
Crit Vol:		646		700				0		187		
Crit Moves:		****		****						****		

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #22 Alcosts/Montevideo

Cycle (sec):	100	Critical Vol./Cap.(X):	0.413
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	39	Level Of Service:	A

Approach:	North Bound					South Bound					East Bound					West Bound				
Movement:	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R	L	-	T	-	R
Control:	Protected					Protected					Split Phase					Split Phase				
Rights:	Include					Include					Include					Include				
Min. Green:	0	0		0		0	0		0		0	0		0		0	0		0	
Lanes:	1	0	2	0	0	0	0	2	0	1	1	0	0	0	1	0	0	0	0	0
Volume Module: 5:00 To 6:00																				
Base Vol:	66	262		0		0	616		210		114		0		43	0		0		0
Growth Adj:	1.21	1.21		1.21		1.21	1.21		1.21		1.22	1.22		1.22		1.22	1.22		1.22	
Initial Bse:	80	318		0		0	747		255		139		0		52	0		0		0
Added Vol:	0	71		0		0	76		94		79		0		0	0		0		0
PasserByVol:	0	0		0		0	0		0		0		0		0	0		0		0
Initial Fut:	80	389		0		0	823		349		218		0		52	0		0		0
User Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
PHF Volume:	80	389		0		0	823		349		218		0		52	0		0		0
Reduct Vol:	0	0		0		0	0		0		0		0		0	0		0		0
Reduced Vol:	80	389		0		0	823		349		218		0		52	0		0		0
RTOR Reduct:	0	0		0		0	0		218		0		0		52	0		0		0
RTOR Vol:	80	389		0		0	823		131		218		0		0	0		0		0
PCE Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
MLF Adj:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Final Vol.:	80	389		0		0	823		131		218		0		0	0		0		0
Saturation Flow Module:																				
Sat/Lane:	1720	1720		1720		1720	1720		1720		1720	1720		1720		1720	1720		1720	
Adjustment:	1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00		1.00	1.00		1.00	
Lanes:	1.00	2.00		0.00		0.00	2.00		1.00		1.00	0.00		1.00		0.00	0.00		0.00	
Final Sat.:	1720	3440		0		0	3440		1720		1720		0		1720	0		0		0
Capacity Analysis Module:																				
Vol/Sat:	0.05	0.11		0.00		0.00	0.24		0.08		0.13	0.00		0.00		0.00	0.00		0.00	
Crit Vol:	80						412				218						0			
Crit Moves:	****						****				****									

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #23 Dougherty/Crow

Cycle (sec): 100 | Critical Vol./Cap.(X): 0.562
Loss Time (sec): 0 (Y+R=4.0 sec) | Average Delay (sec/veh): xxxxxx
Optimal Cycle: 52 | Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Ignore			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	0 0	2	0 0	0 0	0	0 0	3 0	1	2 0	2 0	0
Volume Module:												
Base Vol:	135	0	811	0	0	0	0	1195	137	547	541	0
Growth Adj:	1.23	1.23	1.23	1.23	1.23	1.23	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	166	0	1000	0	0	0	0	1450	166	664	656	0
Added Vol:	18	0	0	0	0	0	0	51	23	0	43	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	184	0	1000	0	0	0	0	1501	189	664	699	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	184	0	1000	0	0	0	0	1501	189	664	699	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	184	0	1000	0	0	0	0	1501	189	664	699	0
RTOR Reduct:	0	0	0	0	0	0	0	0	101	0	0	0
RTOR Vol:	184	0	1000	0	0	0	0	1501	88	664	699	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	184	0	1000	0	0	0	0	1501	88	664	699	0
Saturation Flow Module:												
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720
Adjustment:	0.91	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00
Lanes:	2.00	0.00	2.00	0.00	0.00	0.00	0.00	3.00	1.00	2.00	2.00	0.00
Final Sat.:	3127	0	3127	0	0	0	0	5160	1720	3127	3440	0
Capacity Analysis Module:												
Vol/Sat:	0.06	0.00	0.32	0.00	0.00	0.00	0.00	0.29	0.05	0.21	0.20	0.00
Crit Vol:	92				0			500		332		
Crit Moves:	****							****		****		

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #24 Alcosta/Old Ranch

Cycle (sec):	100	Critical Vol./Cap.(X):	0.345
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	35	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	1 0	1! 0	0	2 0	0 1	1
Volume Module: 5:00 To 6:00												
Base Vol:	2	212	161	164	242	1	1	0	0	127	1	176
Growth Adj:	1.21	1.21	1.21	1.21	1.21	1.21	1.24	1.24	1.24	1.24	1.24	1.24
Initial Bse:	2	257	195	199	294	1	1	0	0	157	1	217
Added Vol:	0	40	0	37	39	0	0	0	0	0	0	31
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	2	297	195	236	333	1	1	0	0	157	1	248
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	2	297	195	236	333	1	1	0	0	157	1	248
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	2	297	195	236	333	1	1	0	0	157	1	248
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	236
RTOR Vol:	2	297	195	236	333	1	1	0	0	157	1	12
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	2	297	195	236	333	1	1	0	0	157	1	12
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	0.91
Lanes:	1.00	1.21	0.79	1.00	1.99	0.01	2.00	0.00	0.00	2.00	0.18	1.82
Final Sat.:	1650	1991	1309	1650	3288	12	3000	0	0	3000	298	2729
Capacity Analysis Module:												
Vol/Sat:	0.00	0.15	0.15	0.14	0.10	0.10	0.00	0.00	0.00	0.05	0.00	0.00
Crit Vol:			246	236			1			78		
Crit Moves:			****	****			****			****		

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #25 Doughert/Old Ranch

Cycle (sec):	100	Critical Vol./Cap.(X):	0.392
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	37	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0 3 0 0			0 0 2 1 0			1 0 0 0 2			0 0 0 0 0		
Volume Module: 5:00 To 6:00 PM												
Base Vol:	232	1052	0	0	494	47	102	0	120	0	0	0
Growth Adj:	1.23	1.23	1.23	1.23	1.23	1.23	1.24	1.24	1.24	1.24	1.24	1.24
Initial Bse:	286	1297	0	0	609	58	126	0	148	0	0	0
Added Vol:	17	0	0	0	0	14	18	0	19	0	0	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	303	1297	0	0	609	72	144	0	167	0	0	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	303	1297	0	0	609	72	144	0	167	0	0	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	303	1297	0	0	609	72	144	0	167	0	0	0
RTOR Reduct:	0	0	0	0	0	0	0	0	167	0	0	0
RTOR Vol:	303	1297	0	0	609	72	144	0	0	0	0	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	303	1297	0	0	609	72	144	0	0	0	0	0
Saturation Flow Module:												
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	1.00
Lanes:	1.00	3.00	0.00	0.00	2.68	0.32	1.00	0.00	2.00	0.00	0.00	0.00
Final Sat.:	1720	5160	0	0	4615	545	1720	0	3127	0	0	0
Capacity Analysis Module:												
Vol/Sat:	0.18	0.25	0.00	0.00	0.13	0.13	0.08	0.00	0.00	0.00	0.00	0.00
Crit Vol:	303				227		144				0	
Crit Moves:	****				****		****					

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #26 Sunset/Center Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.550
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	41	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L - T - R			L - T - R			L - T - R			L - T - R		
Control:	Protected			Protected			Permitted			Permitted		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0 2	1 0		1 0 1	1 0		0 1 0	0 1		1 0 0	1 0	
Volume Module:												
Base Vol:	250	200	112	25	990	75	50	15	175	100	25	15
Growth Adj:	1.09	1.09	1.00	1.09	1.00	1.09	1.09	1.09	1.09	1.09	1.09	1.09
Initial Bse:	272	218	112	27	990	82	54	16	190	109	27	16
Added Vol:	0	131	123	13	152	0	0	0	0	-72	0	12
PasserByVol:	0	0	83	0	0	0	0	0	0	77	0	0
Initial Fut:	272	349	318	40	1142	82	54	16	190	114	27	28
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	272	349	318	40	1142	82	54	16	190	114	27	28
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	272	349	318	40	1142	82	54	16	190	114	27	28
RTOR Reduct:	0	0	0	0	0	0	0	0	150	0	0	0
RTOR Vol:	272	349	318	40	1142	82	54	16	41	114	27	28
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	272	349	318	40	1142	82	54	16	41	114	27	28
Saturation Flow Module:												
Sat/Lane:	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720	1720
Adjustment:	0.91	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	2.00	2.00	1.00	1.00	1.87	0.13	0.77	0.23	1.00	1.00	0.49	0.51
Final Sat.:	3127	3440	1720	1720	3211	229	1323	397	1720	1720	843	877
Capacity Analysis Module:												
Vol/Sat:	0.09	0.10	0.18	0.02	0.36	0.36	0.04	0.04	0.02	0.07	0.03	0.03
Crit Vol:	136					612		71		114		
Crit Moves:	****					****		****		****		

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #27 Bishop Drive/Sunset

Cycle (sec):	100	Critical Vol./Cap.(X):	0.664
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	68	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	1	0 1	0 1	0	1 0	0 1	0	2 0	0 1	0
Volume Module:												
Base Vol:	140	50	75	20	325	25	15	100	250	473	50	20
Growth Adj:	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.09	1.00	1.09	1.09
Initial Bse:	152	54	82	22	354	27	16	109	272	473	54	22
Added Vol:	4	0	140	0	0	0	0	5	4	161	5	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	156	54	222	22	354	27	16	114	276	634	59	22
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	156	54	222	22	354	27	16	114	276	634	59	22
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	156	54	222	22	354	27	16	114	276	634	59	22
RTOR Reduct:	0	0	222	0	0	0	0	0	0	0	0	0
RTOR Vol:	156	54	0	22	354	27	16	114	276	634	59	22
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	156	54	0	22	354	27	16	114	276	634	59	22
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	0.91	1.00	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00
Lanes:	1.00	1.00	1.00	0.11	1.76	0.13	1.00	0.29	0.71	2.00	0.73	0.27
Final Sat.:	1650	1650	1500	178	2899	223	1650	482	1168	3000	1208	442
Capacity Analysis Module:												
Vol/Sat:	0.09	0.03	0.00	0.12	0.12	0.12	0.01	0.24	0.24	0.21	0.05	0.05
Crit Vol:	156					201			390	317		
Crit Moves:	****					****			****	****		

Level Of Service Computation Report
2000 HCM 4-Way Stop Method (Future Volume Alternative)

Intersection #28 Bollinger Canyon/Norris Canyon

Cycle (sec):	100	Critical Vol./Cap.(X):	0.567
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	13.6
Optimal Cycle:	0	Level Of Service:	B

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Stop Sign			Stop Sign			Stop Sign			Stop Sign		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	72	197	59	69	213	20	6	84	146	36	79	44
Growth Adj:	1.23	1.23	1.23	1.23	1.23	1.23	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	89	243	73	85	263	25	7	102	177	44	96	53
Added Vol:	0	46	0	0	40	0	0	27	0	0	30	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	89	289	73	85	303	25	7	129	177	44	126	53
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	89	289	73	85	303	25	7	129	177	44	126	53
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	289	73	85	303	25	7	129	177	44	126	53
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	89	289	73	85	303	25	7	129	177	44	126	53
Saturation Flow Module:												
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.60	0.40	1.00	1.85	0.15	0.02	0.41	0.57	0.20	0.56	0.24
Final Sat.:	471	819	212	466	929	76	13	227	312	99	286	121
Capacity Analysis Module:												
Vol/Sat:	0.19	0.35	0.34	0.18	0.33	0.32	0.57	0.57	0.57	0.44	0.44	0.44
Crit Moves:		****			****				****	****		
Delay/Veh:	11.7	12.8	12.4	11.6	12.6	12.5	16.2	16.2	16.2	14.2	14.2	14.2
Delay Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
AdjDel/Veh:	11.7	12.8	12.4	11.6	12.6	12.5	16.2	16.2	16.2	14.2	14.2	14.2
LOS by Move:	B	B	B	B	B	B	C	C	C	B	B	B
ApproachDel:		12.5			12.4			16.2			14.2	
Delay Adj:		1.00			1.00			1.00			1.00	
ApprAdjDel:		12.5			12.4			16.2			14.2	
LOS by Appr:		B			B			C			B	
AllWayAvgQ:	0.2	0.5	0.5	0.2	0.4	0.4	1.1	1.1	1.1	0.6	0.6	0.6

Note: Queue reported is the number of cars per lane.

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #29 Bollinger/Canyon Lakes

Cycle (sec):	100	Critical Vol./Cap.(X):	0.562
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	52	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	0 1	0	0 1	0 0	1	1 0	3 0	1	1 0	2 1	0
Volume Module:												
Base Vol:	52	6	6	90	7	173	301	1402	107	24	638	89
Growth Adj:	1.09	1.09	1.09	1.09	1.09	1.09	1.23	1.23	1.23	1.23	1.23	1.23
Initial Bse:	57	7	7	98	8	188	371	1729	132	30	787	110
Added Vol:	0	0	0	0	0	19	24	258	0	0	213	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	57	7	7	98	8	207	395	1987	132	30	1000	110
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	57	7	7	98	8	207	395	1987	132	30	1000	110
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	57	7	7	98	8	207	395	1987	132	30	1000	110
RTOR Reduct:	0	0	0	0	0	207	0	0	57	0	0	0
RTOR Vol:	57	7	7	98	8	0	395	1987	75	30	1000	110
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	57	7	7	98	8	0	395	1987	75	30	1000	110
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	0.50	0.50	0.93	0.07	1.00	1.00	3.00	1.00	1.00	2.70	0.30
Final Sat.:	1650	825	825	1531	119	1650	1650	4950	1650	1650	4460	490
Capacity Analysis Module:												
Vol/Sat:	0.03	0.01	0.01	0.06	0.06	0.00	0.24	0.40	0.05	0.02	0.22	0.22
Crit Vol:	57				106		395					370
Crit Moves:	****				****		****					****

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #30 Camino Ramon/Center Street

Cycle (sec):	100	Critical Vol./Cap.(X):	0.235
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	30	Level Of Service:	A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Protected			Protected			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	0 0 1 1 0			0 0 1 1 0			0 0 0 1 0			0 0 0 1 0		
Volume Module:												
Base Vol:	0	431	0	0	488	0	0	0	0	0	0	0
Growth Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Initial Bse:	0	431	0	0	488	0	0	0	0	0	0	0
Added Vol:	0	206	4	0	227	4	0	0	0	0	0	0
PasserByVol:	0	0	53	0	0	0	0	29	0	0	24	0
Initial Fut:	0	637	57	0	715	4	0	29	0	0	24	0
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	0	637	57	0	715	4	0	29	0	0	24	0
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	0	637	57	0	715	4	0	29	0	0	24	0
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Vol:	0	637	57	0	715	4	0	29	0	0	24	0
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	0	637	57	0	715	4	0	29	0	0	24	0
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	0.00	1.84	0.16	0.00	1.99	0.01	0.00	1.00	0.00	0.00	1.00	0.00
Final Sat.:	0	3029	271	0	3282	18	0	1650	0	0	1650	0
Capacity Analysis Module:												
Vol/Sat:	0.00	0.21	0.21	0.00	0.22	0.22	0.00	0.02	0.00	0.00	0.01	0.00
Crit Vol:	0					360		29		0		
Crit Moves:	****					****		****		****		

TRAFFIX ANALYSIS

2020 + Project (Mitigation)

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

****

Intersection #12 Sunset/Bollinger

****

Cycle (sec):	100	Critical Vol./Cap.(X):	0.804
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	117	Level Of Service:	D

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Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	0 1	0	0 1	0 0	1	2 0	4 0	1	2 0	4 0	1
Volume Module:												
Base Vol:	56	9	36	89	39	219	1277	1848	720	215	1716	178
Growth Adj:	1.00	1.07	1.00	1.00	1.07	1.00	1.00	1.00	1.00	1.24	1.00	1.00
Initial Bse:	56	10	36	89	42	219	1277	1848	720	266	1716	178
Added Vol:	0	0	0	13	0	53	-69	329	0	0	120	-33
PasserByVol:	0	0	0	7	0	4	15	-15	0	0	-4	2
Initial Fut:	56	10	36	109	42	276	1223	2162	720	266	1832	147
User Adj:	1.00	1.00	1.00	1.00	1.00	0.45	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	56	10	36	109	42	124	1223	2162	720	266	1832	147
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	56	10	36	109	42	124	1223	2162	720	266	1832	147
RTOR Reduct:	0	0	0	0	0	124	0	0	31	0	0	109
RTOR Vol:	56	10	36	109	42	0	1223	2162	689	266	1832	38
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	56	10	36	109	42	0	1223	2162	689	266	1832	38
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	0.91	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Lanes:	2.00	0.21	0.79	0.72	0.28	1.00	2.00	4.00	1.00	2.00	4.00	1.00
Final Sat.:	3000	349	1301	1192	458	1650	3000	6600	1650	3000	6600	1650
Capacity Analysis Module:												
Vol/Sat:	0.02	0.03	0.03	0.09	0.09	0.00	0.41	0.33	0.42	0.09	0.28	0.02
Crit Vol:			46		151		612				458	
Crit Moves:			****		****		****				****	

****

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #12 Sunset/Bollinger

Cycle (sec):	100	Critical Vol./Cap.(X):	0.865
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	169	Level Of Service:	D

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L	T	R	L	T	R	L	T	R	L	T	R
Control:	Split Phase			Split Phase			Protected			Protected		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	2 0	0 1	0	0 1	0 0	1	2 0	4 0	1	2 0	4 0	1
Volume Module:												
Base Vol:	495	35	108	142	13	1264	420	2291	53	28	1786	231
Growth Adj:	1.00	1.09	1.00	1.00	1.09	1.00	1.00	1.00	1.00	1.23	1.00	1.00
Initial Bse:	495	38	108	142	14	1264	420	2291	53	35	1786	231
Added Vol:	0	0	0	34	0	46	199	231	0	0	438	55
PasserByVol:	0	0	0	29	0	48	59	-59	0	0	-48	24
Initial Fut:	495	38	108	205	14	1358	678	2463	53	35	2176	310
User Adj:	1.00	1.00	1.00	1.00	1.00	0.45	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	495	38	108	205	14	611	678	2463	53	35	2176	310
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	495	38	108	205	14	611	678	2463	53	35	2176	310
RTOR Reduct:	0	0	0	0	0	373	0	0	53	0	0	205
RTOR Vol:	495	38	108	205	14	238	678	2463	0	35	2176	105
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	495	38	108	205	14	238	678	2463	0	35	2176	105
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	0.91	1.00	1.00	1.00	1.00	1.00	0.91	1.00	1.00	0.91	1.00	1.00
Lanes:	2.00	0.26	0.74	0.94	0.06	1.00	2.00	4.00	1.00	2.00	4.00	1.00
Final Sat.:	3000	430	1220	1544	106	1650	3000	6600	1650	3000	6600	1650
Capacity Analysis Module:												
Vol/Sat:	0.17	0.09	0.09	0.13	0.13	0.14	0.23	0.37	0.00	0.01	0.33	0.06
Crit Vol:	248					238	339				544	
Crit Moves:	****					****	****				****	

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #28 Bollinger Canyon/Norris Canyon

Cycle (sec):	100	Critical Vol./Cap.(X):	0.724
Loss Time (sec):	0 (Y+R=4.0 sec)	Average Delay (sec/veh):	xxxxxx
Optimal Cycle:	83	Level Of Service:	C

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	99	281	66	121	360	11	12	279	164	69	61	87
Growth Adj:	1.24	1.24	1.24	1.24	1.24	1.24	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	122	347	82	150	445	14	14	336	198	83	74	105
Added Vol:	0	13	0	0	22	0	0	3	0	0	12	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	122	360	82	150	467	14	14	339	198	83	86	105
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	122	360	82	150	467	14	14	339	198	83	86	105
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	122	360	82	150	467	14	14	339	198	83	86	105
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Vol:	122	360	82	150	467	14	14	339	198	83	86	105
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	122	360	82	150	467	14	14	339	198	83	86	105
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.63	0.37	1.00	1.94	0.06	0.03	0.61	0.36	0.30	0.31	0.39
Final Sat.:	1650	2691	609	1650	3207	93	43	1015	591	502	516	632
Capacity Analysis Module:												
Vol/Sat:	0.07	0.13	0.13	0.09	0.15	0.15	0.33	0.33	0.33	0.17	0.17	0.17
Crit Vol:		221		150					551			273
Crit Moves:		****		****					****			****

Level Of Service Computation Report
CCTALOS Method (Future Volume Alternative)

Intersection #28 Bollinger Canyon/Norris Canyon

Cycle (sec): 100 Critical Vol./Cap.(X): 0.485
Loss Time (sec): 0 (Y+R=4.0 sec) Average Delay (sec/veh): xxxxxx
Optimal Cycle: 44 Level Of Service: A

Approach:	North Bound			South Bound			East Bound			West Bound		
Movement:	L -	T -	R	L -	T -	R	L -	T -	R	L -	T -	R
Control:	Protected			Protected			Split Phase			Split Phase		
Rights:	Include			Include			Include			Include		
Min. Green:	0	0	0	0	0	0	0	0	0	0	0	0
Lanes:	1 0	1 1	0	1 0	1 1	0	0 0	1! 0	0	0 0	1! 0	0
Volume Module:												
Base Vol:	72	197	59	69	213	20	6	84	146	36	79	44
Growth Adj:	1.23	1.23	1.23	1.23	1.23	1.23	1.21	1.21	1.21	1.21	1.21	1.21
Initial Bse:	89	243	73	85	263	25	7	102	177	44	96	53
Added Vol:	0	46	0	0	40	0	0	32	0	0	24	0
PasserByVol:	0	0	0	0	0	0	0	0	0	0	0	0
Initial Fut:	89	289	73	85	303	25	7	134	177	44	120	53
User Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
PHF Volume:	89	289	73	85	303	25	7	134	177	44	120	53
Reduct Vol:	0	0	0	0	0	0	0	0	0	0	0	0
Reduced Vol:	89	289	73	85	303	25	7	134	177	44	120	53
RTOR Reduct:	0	0	0	0	0	0	0	0	0	0	0	0
RTOR Vol:	89	289	73	85	303	25	7	134	177	44	120	53
PCE Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
MLF Adj:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Final Vol.:	89	289	73	85	303	25	7	134	177	44	120	53
Saturation Flow Module:												
Sat/Lane:	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650	1650
Adjustment:	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00	1.00
Lanes:	1.00	1.60	0.40	1.00	1.85	0.15	0.02	0.42	0.56	0.20	0.55	0.25
Final Sat.:	1650	2636	664	1650	3051	249	38	694	918	332	912	406
Capacity Analysis Module:												
Vol/Sat:	0.05	0.11	0.11	0.05	0.10	0.10	0.19	0.19	0.19	0.13	0.13	0.13
Crit Vol:			181	85					318		217	
Crit Moves:			****	****					****		****	

APPENDIX H

QUEUING ANALYSIS

2020 + Project

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	89	29	40	61	13	307	0	737	229	98	230	139
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Frt			0.850			0.850		0.964				0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	3412	0	3433	1863	1583
Flt Permitted	0.748			0.736						0.199		
Satd. Flow (perm)	1393	1863	1583	1371	1863	1583	0	3412	0	719	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			43			182		92				151
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		780			600			300			100	
Travel Time (s)		17.7			13.6			6.8			2.3	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	97	32	43	66	14	334	0	801	249	107	250	151
Shared Lane Traffic (%)												
Lane Group Flow (vph)	97	32	43	66	14	334	0	1050	0	107	250	151
v/c Ratio	0.24	0.08	0.12	0.14	0.03	0.65		0.63		0.32	0.28	0.18
Control Delay	10.2	16.7	8.3	10.1	12.4	13.5		12.7		13.9	10.6	3.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.1		0.0	0.0	0.0
Total Delay	10.2	16.7	8.3	10.1	12.4	13.5		12.7		13.9	10.6	3.3
Queue Length 50th (ft)	14	5	0	11	3	33		98		8	40	0
Queue Length 95th (ft)	33	27	21	25	12	90		#228		30	99	28
Internal Link Dist (ft)		700			520			220			20	
Turn Bay Length (ft)	180			200								
Base Capacity (vph)	409	622	557	464	618	647		1656		339	878	826
Starvation Cap Reductn	0	0	0	0	0	0		54		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0		0	0	0
Reduced v/c Ratio	0.24	0.05	0.08	0.14	0.02	0.52		0.66		0.32	0.28	0.18

Intersection Summary

Area Type: Other

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1223	2162	720	266	1832	147	56	10	36	109	42	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	250		0	0		0	0		0
Storage Lanes	2		1	2		1	2		0	0		2
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	0.97	1.00	1.00	1.00	1.00	0.88
Frt			0.850			0.850		0.883				0.850
Flt Protected	0.950			0.950			0.950				0.965	
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	3433	1645	0	0	1798	2787
Flt Permitted	0.950			0.950			0.950				0.965	
Satd. Flow (perm)	3433	6408	1583	3433	6408	1583	3433	1645	0	0	1798	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			597			127		39				300
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1100			900			847			420	
Travel Time (s)		25.0			20.5			19.3			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1329	2350	783	289	1991	160	61	11	39	118	46	300
Shared Lane Traffic (%)												
Lane Group Flow (vph)	1329	2350	783	289	1991	160	61	50	0	0	164	300
v/c Ratio	1.33	0.73	0.72	0.64	0.92	0.26	0.14	0.21			0.74	0.50
Control Delay	190.5	27.4	9.5	60.9	49.1	9.3	51.9	22.8			70.1	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			0.0	0.0
Total Delay	190.5	27.4	9.5	60.9	49.1	9.3	51.9	22.8			70.1	14.7
Queue Length 50th (ft)	~746	442	102	121	466	19	24	8			143	56
Queue Length 95th (ft)	#883	486	262	169	518	69	46	48			#247	102
Internal Link Dist (ft)		1020			820			767			340	
Turn Bay Length (ft)	600			250								
Base Capacity (vph)	1003	3204	1090	449	2169	620	423	237			221	606
Starvation Cap Reductn	0	0	0	0	0	0	0	0			0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	1.33	0.73	0.72	0.64	0.92	0.26	0.14	0.21			0.74	0.50

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	1223	2162	720	266	1832	147	56	10	36	109	42	276
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	250		0	0		0	0		0
Storage Lanes	2		1	2		1	2		0	1		2
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	0.97	1.00	1.00	0.95	0.95	0.88
Frt			0.850			0.850		0.883				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.978	
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	3433	1645	0	1681	1731	2787
Flt Permitted	0.950			0.950			0.950			0.950	0.978	
Satd. Flow (perm)	3433	6408	1583	3433	6408	1583	3433	1645	0	1681	1731	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			597			127		39				300
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1100			900			847			420	
Travel Time (s)		25.0			20.5			19.3			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	1329	2350	783	289	1991	160	61	11	39	118	46	300
Shared Lane Traffic (%)										31%		
Lane Group Flow (vph)	1329	2350	783	289	1991	160	61	50	0	81	83	300
v/c Ratio	1.33	0.73	0.72	0.64	0.92	0.26	0.14	0.21		0.39	0.39	0.50
Control Delay	190.5	27.4	9.5	60.9	49.1	9.3	51.9	22.8		52.7	52.4	14.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	0.0
Total Delay	190.5	27.4	9.5	60.9	49.1	9.3	51.9	22.8		52.7	52.4	14.7
Queue Length 50th (ft)	~746	442	102	121	466	19	24	8		73	75	56
Queue Length 95th (ft)	#883	486	262	169	518	69	46	48		132	135	102
Internal Link Dist (ft)		1020			820			767			340	
Turn Bay Length (ft)	600			250								
Base Capacity (vph)	1003	3204	1090	449	2169	620	423	237		207	213	606
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.33	0.73	0.72	0.64	0.92	0.26	0.14	0.21		0.39	0.39	0.50

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	866	1040	481	99	2125	105	36	29	9	60	116	71
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		400	225		225	445		0	0		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	6408	1583	3433	6408	1583	3433	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			472			102			10			77
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		900			600			867			400	
Travel Time (s)		20.5			13.6			19.7			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	941	1130	523	108	2310	114	39	32	10	65	126	77
Shared Lane Traffic (%)												
Lane Group Flow (vph)	941	1130	523	108	2310	114	39	32	10	65	126	77
v/c Ratio	1.03	0.33	0.49	0.47	1.08	0.19	0.25	0.10	0.03	0.82	0.38	0.22
Control Delay	71.1	12.2	3.5	47.7	75.8	6.6	45.8	31.9	17.0	106.4	36.5	9.7
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	71.1	12.2	3.5	47.7	75.8	6.6	45.8	31.9	17.0	106.4	36.5	9.7
Queue Length 50th (ft)	~297	99	13	30	~431	5	11	15	0	38	64	0
Queue Length 95th (ft)	#416	122	62	57	#507	40	27	41	14	#113	117	37
Internal Link Dist (ft)		820			520			787			320	
Turn Bay Length (ft)	500		400	225		225	445					
Base Capacity (vph)	915	3418	1065	229	2136	596	153	331	290	79	331	345
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.03	0.33	0.49	0.47	1.08	0.19	0.25	0.10	0.03	0.82	0.38	0.22

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	11	951	160	157	2194	320	25	0	22	103	0	39
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	325		0	0		0
Storage Lanes	2		0	2		0	1		0	2		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	0.86	0.97	0.86	0.86	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.978			0.981			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	6267	0	3433	6286	0	1770	1583	0	3433	1583	0
Flt Permitted	0.211			0.950			0.730			0.742		
Satd. Flow (perm)	762	6267	0	3433	6286	0	1360	1583	0	2681	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		84			101			276			2	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			330			919			700	
Travel Time (s)		13.6			7.5			20.9			15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	12	1034	174	171	2385	348	27	0	24	112	0	42
Shared Lane Traffic (%)												
Lane Group Flow (vph)	12	1208	0	171	2733	0	27	24	0	112	42	0
v/c Ratio	0.05	0.54		0.46	0.81		0.06	0.03		0.13	0.08	
Control Delay	12.7	14.5		27.3	12.8		13.3	0.1		13.5	12.9	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	12.7	14.5		27.3	12.8		13.3	0.1		13.5	12.9	
Queue Length 50th (ft)	1	83		27	186		6	0		12	9	
Queue Length 95th (ft)	6	111		52	234		20	0		27	26	
Internal Link Dist (ft)		520			250			839			620	
Turn Bay Length (ft)	200			150			325					
Base Capacity (vph)	263	2220		375	3362		445	704		877	519	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.05	0.54		0.46	0.81		0.06	0.03		0.13	0.08	

Intersection Summary

Area Type: Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	52	6	152	33	1	7	324	773	58	13	242	25
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	80		0
Storage Lanes	0		1	1		0	2		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.867			0.990			0.986	
Flt Protected		0.957		0.950			0.950			0.950		
Satd. Flow (prot)	0	1783	1583	1770	1615	0	3433	5034	0	1770	3490	0
Flt Permitted		0.743		0.715			0.950			0.950		
Satd. Flow (perm)	0	1384	1583	1332	1615	0	3433	5034	0	1770	3490	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			165		8			25			18	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		460			900			420			280	
Travel Time (s)		10.5			20.5			9.5			6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	57	7	165	36	1	8	352	840	63	14	263	27
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	64	165	36	9	0	352	903	0	14	290	0
v/c Ratio		0.36	0.47	0.21	0.04		0.59	0.25		0.13	0.16	
Control Delay		30.4	9.5	26.9	15.0		38.7	4.4		37.4	15.7	
Queue Delay		0.0	0.0	0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay		30.4	9.5	26.9	15.0		38.7	4.4		37.4	15.7	
Queue Length 50th (ft)		24	0	13	0		152	77		8	108	
Queue Length 95th (ft)		53	45	35	11		m122	m96		m20	162	
Internal Link Dist (ft)		380			820			340			200	
Turn Bay Length (ft)							150			80		
Base Capacity (vph)		383	558	369	453		687	3642		109	1789	
Starvation Cap Reductn		0	0	0	0		0	0		0	0	
Spillback Cap Reductn		0	0	0	0		0	32		0	0	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.17	0.30	0.10	0.02		0.51	0.25		0.13	0.16	

Intersection Summary

Area Type: Other

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	27	89	98	163	77	12	322	422	88	12	15	21
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	280		0	0		0
Storage Lanes	1		0	2		0	1		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Frt		0.921			0.980			0.997	0.850		0.934	
Flt Protected	0.950			0.950			0.950				0.988	
Satd. Flow (prot)	1770	1716	0	3433	1825	0	1770	1764	1504	0	3266	0
Flt Permitted	0.950			0.950			0.950				0.988	
Satd. Flow (perm)	1770	1716	0	3433	1825	0	1770	1764	1504	0	3266	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		38			6			1	86		23	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		755			780			280			135	
Travel Time (s)		17.2			17.7			6.4			3.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	29	97	107	177	84	13	350	459	96	13	16	23
Shared Lane Traffic (%)									10%			
Lane Group Flow (vph)	29	204	0	177	97	0	350	469	86	0	52	0
v/c Ratio	0.28	0.75		0.56	0.26		0.33	0.44	0.09		0.27	
Control Delay	64.5	60.1		62.9	42.3		3.8	6.8	0.2		40.6	
Queue Delay	0.0	0.0		0.0	0.0		1.0	1.2	0.0		0.0	
Total Delay	64.5	60.1		62.9	42.3		4.8	8.0	0.2		40.6	
Queue Length 50th (ft)	24	137		74	67		17	61	0		12	
Queue Length 95th (ft)	56	211		110	112		44	537	1		34	
Internal Link Dist (ft)		675			700			200			55	
Turn Bay Length (ft)							280					
Base Capacity (vph)	106	362		607	594		1076	1073	948		422	
Starvation Cap Reductn	0	0		0	0		476	376	0		0	
Spillback Cap Reductn	0	0		0	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.27	0.56		0.29	0.16		0.58	0.67	0.09		0.12	

Intersection Summary

Area Type: Other

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	193	71	162	283	140	214	0	536	141	429	357	604
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	180		0	200		0	0		0	0		0
Storage Lanes	1		1	1		1	0		0	2		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	1.00	0.95	0.95	0.97	1.00	1.00
Frt			0.850			0.850		0.969				0.850
Flt Protected	0.950			0.950						0.950		
Satd. Flow (prot)	1770	1863	1583	1770	1863	1583	0	3430	0	3433	1863	1583
Flt Permitted	0.678			0.707						0.320		
Satd. Flow (perm)	1263	1863	1583	1317	1863	1583	0	3430	0	1156	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			176			188		74				657
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		780			600			300			1000	
Travel Time (s)		17.7			13.6			6.8			22.7	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	210	77	176	308	152	233	0	583	153	466	388	657
Shared Lane Traffic (%)												
Lane Group Flow (vph)	210	77	176	308	152	233	0	736	0	466	388	657
v/c Ratio	0.61	0.25	0.43	0.63	0.38	0.48		0.47		0.91	0.47	0.62
Control Delay	18.5	17.6	7.1	16.9	17.4	8.1		9.6		41.9	12.0	4.1
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0		0.0		0.0	0.0	0.0
Total Delay	18.5	17.6	7.1	16.9	17.4	8.1		9.6		41.9	12.0	4.1
Queue Length 50th (ft)	33	16	0	52	32	9		55		52	64	0
Queue Length 95th (ft)	67	44	37	98	69	50		110		#147	144	51
Internal Link Dist (ft)		700			520			220			920	
Turn Bay Length (ft)	180			200								
Base Capacity (vph)	344	574	609	491	619	651		1561		512	825	1067
Starvation Cap Reductn	0	0	0	0	0	0		71		0	0	0
Spillback Cap Reductn	0	0	0	0	0	0		0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0		0		0	0	0
Reduced v/c Ratio	0.61	0.13	0.29	0.63	0.25	0.36		0.49		0.91	0.47	0.62

Intersection Summary

Area Type: Other

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	678	2463	53	35	2176	310	495	38	108	205	14	1358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	250		0	0		0	0		0
Storage Lanes	2		1	2		1	2		0	0		2
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	0.97	1.00	1.00	1.00	1.00	0.88
Frt			0.850			0.850		0.889				0.850
Flt Protected	0.950			0.950			0.950				0.955	
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	3433	1656	0	0	1779	2787
Flt Permitted	0.950			0.950			0.950				0.955	
Satd. Flow (perm)	3433	6408	1583	3433	6408	1583	3433	1656	0	0	1779	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			196		87				431
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1100			900			847			420	
Travel Time (s)		25.0			20.5			19.3			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	737	2677	58	38	2365	337	538	41	117	223	15	1476
Shared Lane Traffic (%)												
Lane Group Flow (vph)	737	2677	58	38	2365	337	538	158	0	0	238	1476
v/c Ratio	1.37	0.99	0.08	0.39	1.26	0.56	1.00	0.47			0.48	1.36
Control Delay	220.2	55.5	11.8	78.3	162.5	20.7	96.7	29.5			33.3	186.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0			1.3	22.0
Total Delay	220.2	55.5	11.8	78.3	162.5	20.7	96.7	29.5			34.6	208.3
Queue Length 50th (ft)	~455	696	12	18	~783	106	255	58			123	~811
Queue Length 95th (ft)	#581	#795	40	38	#854	208	#378	132			218	#971
Internal Link Dist (ft)		1020			820			767			340	
Turn Bay Length (ft)	600			250								
Base Capacity (vph)	539	2701	688	98	1877	602	539	334			496	1087
Starvation Cap Reductn	0	0	0	0	0	0	0	0			113	38
Spillback Cap Reductn	0	0	0	0	0	0	0	0			0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0			0	0
Reduced v/c Ratio	1.37	0.99	0.08	0.39	1.26	0.56	1.00	0.47			0.62	1.41

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Queues
12: Bollinger Canyon & Sunset Drive

6/13/2007

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	678	2463	53	35	2176	310	495	38	108	205	14	1358
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	600		0	250		0	0		0	0		0
Storage Lanes	2		1	2		1	2		0	1		2
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	0.97	1.00	1.00	0.95	0.95	0.88
Frt			0.850			0.850		0.889				0.850
Flt Protected	0.950			0.950			0.950			0.950	0.958	
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	3433	1656	0	1681	1695	2787
Flt Permitted	0.950			0.950			0.950			0.950	0.958	
Satd. Flow (perm)	3433	6408	1583	3433	6408	1583	3433	1656	0	1681	1695	2787
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			36			196		87				431
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		1100			900			847			420	
Travel Time (s)		25.0			20.5			19.3			9.5	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	737	2677	58	38	2365	337	538	41	117	223	15	1476
Shared Lane Traffic (%)										47%		
Lane Group Flow (vph)	737	2677	58	38	2365	337	538	158	0	118	120	1476
v/c Ratio	1.37	0.99	0.08	0.39	1.26	0.56	1.00	0.47		0.25	0.25	1.36
Control Delay	220.2	55.5	11.8	78.3	162.5	20.7	96.7	29.5		30.7	30.6	186.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0		0.0	0.0	22.0
Total Delay	220.2	55.5	11.8	78.3	162.5	20.7	96.7	29.5		30.7	30.6	208.3
Queue Length 50th (ft)	~455	696	12	18	~783	106	255	58		63	63	~811
Queue Length 95th (ft)	#581	#795	40	38	#854	208	#378	132		m117	m120	#971
Internal Link Dist (ft)		1020			820			767			340	
Turn Bay Length (ft)	600			250								
Base Capacity (vph)	539	2701	688	98	1877	602	539	334		468	472	1087
Starvation Cap Reductn	0	0	0	0	0	0	0	0		0	0	38
Spillback Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0		0	0	0
Reduced v/c Ratio	1.37	0.99	0.08	0.39	1.26	0.56	1.00	0.47		0.25	0.25	1.41

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	511	2196	81	39	1451	79	552	107	107	338	43	334
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	500		400	225		225	445		0	0		0
Storage Lanes	2		1	2		1	2		1	1		1
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	1.00	0.97	0.86	1.00	0.97	1.00	1.00	1.00	1.00	1.00
Frt			0.850			0.850			0.850			0.850
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	6408	1583	3433	6408	1583	3433	1863	1583	1770	1863	1583
Flt Permitted	0.950			0.950			0.950			0.950		
Satd. Flow (perm)	3433	6408	1583	3433	6408	1583	3433	1863	1583	1770	1863	1583
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			88			86			116			330
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		900			600			867			400	
Travel Time (s)		20.5			13.6			19.7			9.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	555	2387	88	42	1577	86	600	116	116	367	47	363
Shared Lane Traffic (%)												
Lane Group Flow (vph)	555	2387	88	42	1577	86	600	116	116	367	47	363
v/c Ratio	1.04	1.12	0.15	0.27	1.11	0.21	0.68	0.33	0.30	0.81	0.13	0.64
Control Delay	88.2	89.8	5.6	46.3	93.1	8.1	34.9	34.6	8.5	47.5	31.6	11.3
Queue Delay	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0	0.0
Total Delay	88.2	89.8	5.6	46.3	93.1	8.1	34.9	34.6	8.5	47.5	31.6	11.3
Queue Length 50th (ft)	~177	~458	0	12	~300	0	158	58	0	196	22	16
Queue Length 95th (ft)	#278	#534	31	28	#375	37	217	107	44	#338	52	99
Internal Link Dist (ft)		820			520			787			320	
Turn Bay Length (ft)	500		400	225		225	445					
Base Capacity (vph)	534	2136	586	153	1424	419	877	352	393	452	352	567
Starvation Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Spillback Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Storage Cap Reductn	0	0	0	0	0	0	0	0	0	0	0	0
Reduced v/c Ratio	1.04	1.12	0.15	0.27	1.11	0.21	0.68	0.33	0.30	0.81	0.13	0.64

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	45	2651	26	90	1426	380	270	0	155	592	0	63
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	200		0	150		0	325		0	0		0
Storage Lanes	2		0	2		0	1		0	2		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	0.97	0.86	0.86	0.97	0.86	0.86	1.00	1.00	1.00	0.97	1.00	1.00
Frt		0.999			0.968			0.850			0.850	
Flt Protected	0.950			0.950			0.950			0.950		
Satd. Flow (prot)	3433	6401	0	3433	6203	0	1770	1583	0	3433	1583	0
Flt Permitted	0.200			0.950			0.713			0.651		
Satd. Flow (perm)	723	6401	0	3433	6203	0	1328	1583	0	2353	1583	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		4			178			182			17	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		600			330			919			700	
Travel Time (s)		13.6			7.5			20.9			15.9	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	49	2882	28	98	1550	413	293	0	168	643	0	68
Shared Lane Traffic (%)												
Lane Group Flow (vph)	49	2910	0	98	1963	0	293	168	0	643	68	0
v/c Ratio	0.19	1.25		0.39	0.60		0.64	0.25		0.79	0.12	
Control Delay	14.3	136.5		29.2	9.6		23.0	3.3		25.5	10.6	
Queue Delay	0.0	0.0		0.0	0.0		0.0	0.0		0.0	0.0	
Total Delay	14.3	136.5		29.2	9.6		23.0	3.3		25.5	10.6	
Queue Length 50th (ft)	5	~363		15	107		78	0		95	11	
Queue Length 95th (ft)	15	#440		35	139		#156	28		#173	33	
Internal Link Dist (ft)		520			250			839			620	
Turn Bay Length (ft)	200			150			325					
Base Capacity (vph)	263	2330		250	3245		459	666		813	558	
Starvation Cap Reductn	0	0		0	0		0	0		0	0	
Spillback Cap Reductn	0	0		0	0		0	0		0	0	
Storage Cap Reductn	0	0		0	0		0	0		0	0	
Reduced v/c Ratio	0.19	1.25		0.39	0.60		0.64	0.25		0.79	0.12	

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	54	16	190	114	27	28	272	349	318	40	1142	82
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	150		0	80		0
Storage Lanes	0		1	1		0	2		0	1		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	1.00	1.00	1.00	0.97	0.91	0.91	1.00	0.95	0.95
Frt			0.850		0.924			0.928			0.990	
Flt Protected		0.963		0.950			0.950			0.950		
Satd. Flow (prot)	0	1794	1583	1770	1721	0	3433	4719	0	1770	3504	0
Flt Permitted		0.747		0.708			0.950			0.950		
Satd. Flow (perm)	0	1391	1583	1319	1721	0	3433	4719	0	1770	3504	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)			207		30			346			14	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		460			900			420			280	
Travel Time (s)		10.5			20.5			9.5			6.4	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	59	17	207	124	29	30	296	379	346	43	1241	89
Shared Lane Traffic (%)												
Lane Group Flow (vph)	0	76	207	124	59	0	296	725	0	43	1330	0
v/c Ratio		0.33	0.48	0.57	0.19		0.67	0.24		0.26	0.71	
Control Delay		28.3	7.9	36.4	15.3		30.6	1.5		41.5	10.8	
Queue Delay		0.0	0.1	0.3	0.0		0.0	0.0		0.0	0.4	
Total Delay		28.3	8.0	36.7	15.3		30.6	1.6		41.5	11.2	
Queue Length 50th (ft)		29	0	50	11		95	10		19	261	
Queue Length 95th (ft)		61	48	93	37		m92	m15		m30	m409	
Internal Link Dist (ft)		380			820			340			200	
Turn Bay Length (ft)							150			80		
Base Capacity (vph)		318	522	301	417		441	3082		168	1880	
Starvation Cap Reductn		0	0	0	0		0	0		0	167	
Spillback Cap Reductn		0	30	22	2		0	209		0	54	
Storage Cap Reductn		0	0	0	0		0	0		0	0	
Reduced v/c Ratio		0.24	0.42	0.44	0.14		0.67	0.25		0.26	0.78	

Intersection Summary

Area Type: Other

m Volume for 95th percentile queue is metered by upstream signal.

Lane Group	EBL	EBT	EBR	WBL	WBT	WBR	NBL	NBT	NBR	SBL	SBT	SBR
Lane Configurations												
Volume (vph)	16	114	276	634	59	22	156	54	222	22	354	27
Ideal Flow (vphpl)	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900	1900
Storage Length (ft)	0		0	0		0	280		0	0		0
Storage Lanes	1		0	2		0	1		1	0		0
Taper Length (ft)	25		25	25		25	25		25	25		25
Lane Util. Factor	1.00	1.00	1.00	0.97	1.00	1.00	1.00	0.95	0.95	0.95	0.95	0.95
Frt		0.894			0.959			0.907	0.850		0.990	
Flt Protected	0.950			0.950			0.950				0.997	
Satd. Flow (prot)	1770	1665	0	3433	1786	0	1770	1605	1504	0	3493	0
Flt Permitted	0.950			0.950			0.950				0.997	
Satd. Flow (perm)	1770	1665	0	3433	1786	0	1770	1605	1504	0	3493	0
Right Turn on Red			Yes			Yes			Yes			Yes
Satd. Flow (RTOR)		79			24			48	145		4	
Link Speed (mph)		30			30			30			30	
Link Distance (ft)		755			780			280			135	
Travel Time (s)		17.2			17.7			6.4			3.1	
Peak Hour Factor	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92	0.92
Adj. Flow (vph)	17	124	300	689	64	24	170	59	241	24	385	29
Shared Lane Traffic (%)									40%			
Lane Group Flow (vph)	17	424	0	689	88	0	170	155	145	0	438	0
v/c Ratio	0.27	1.01		0.80	0.10		0.32	0.30	0.26		1.02	
Control Delay	76.5	90.9		56.1	15.0		57.7	45.4	26.4		108.5	
Queue Delay	0.0	2.8		0.2	0.0		2.3	1.4	0.8		0.0	
Total Delay	76.5	93.7		56.3	15.0		60.0	46.8	27.2		108.5	
Queue Length 50th (ft)	15	~337		304	30		140	103	57		~221	
Queue Length 95th (ft)	42	#560		348	62		212	173	114		#336	
Internal Link Dist (ft)		675			700			200			55	
Turn Bay Length (ft)							280					
Base Capacity (vph)	63	419		1422	1069		528	513	551		428	
Starvation Cap Reductn	0	0		0	0		244	210	207		0	
Spillback Cap Reductn	0	4		194	0		0	0	0		0	
Storage Cap Reductn	0	0		0	0		0	0	0		0	
Reduced v/c Ratio	0.27	1.02		0.56	0.08		0.60	0.51	0.42		1.02	

Intersection Summary

Area Type: Other

~ Volume exceeds capacity, queue is theoretically infinite.
Queue shown is maximum after two cycles.

95th percentile volume exceeds capacity, queue may be longer.
Queue shown is maximum after two cycles.

APPENDIX I

HCS FREEWAY ANALYSIS

I-680 BASIC FREEWAY SEGMENTS

Existing
Existing + Project
2020
2020 + Project

I-680/BOLLINGER CANYON ROAD INTERCHANGE

Existing
Existing + Project
2020
2020 + Project

I-680 BASIC FREEWAY SEGMENTS

Existing

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	6329	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1758	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2344	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2344	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	52.4	mi/h
Number of lanes, N	3	
Density, D	44.7	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Existing
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	5403	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1501	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1501	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1501	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	23.1	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Norris Canyon/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	6885	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1913	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1913	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1913	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	62.7	mi/h
Number of lanes, N	4	
Density, D	30.5	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone:
E-mail:
Fax:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
Analysis Year:	Existing
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	7176	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1993	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2658	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2658	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone:
E-mail:
Fax:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	5734	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1593	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2124	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2124	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	59.0	mi/h
Number of lanes, N	3	
Density, D	36.0	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone:
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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Existing
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	5534	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1537	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1537	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1537	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	23.7	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Crow Canyon / Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	7416	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2060	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2060	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2060	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	60.4	mi/h
Number of lanes, N	4	
Density, D	34.1	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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E-mail:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
Analysis Year:	Existing
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	8106	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2252	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	3002	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3002	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

I-680 BASIC FREEWAY SEGMENTS

Existing + Project

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
E-mail:

Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	6576	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1827	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2436	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2436	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	5454	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1515	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1515	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1515	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	65.0	mi/h
Number of lanes, N	4	
Density, D	23.3	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Norris Canyon/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	7002	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1945	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1945	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1945	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	62.3	mi/h
Number of lanes, N	4	
Density, D	31.2	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	7278	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2022	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2696	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2696	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	5964	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1657	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2209	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2209	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	56.8	mi/h
Number of lanes, N	3	
Density, D	38.9	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	5693	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1581	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1581	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1581	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	64.9	mi/h
Number of lanes, N	4	
Density, D	24.4	pc/mi/ln
Level of service, LOS	C	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Crow Canyon / Bollinger Canyon
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	7527	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2091	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2091	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2091	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	59.7	mi/h
Number of lanes, N	4	
Density, D	35.0+	pc/mi/ln
Level of service, LOS	E	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
Analysis Year:	Existing + Flex Retail Project
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	8444	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2346	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	3127	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3127	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

I-680 BASIC FREEWAY SEGMENTS

2020

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
~~Analysis Year:~~	~~Background 2020~~
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	7702	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2139	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2853	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2853	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

Phone: Fax:
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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Background 2020
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	6648	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1847	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1847	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1847	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	63.5	mi/h
Number of lanes, N	4	
Density, D	29.1	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Norris Canyon/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Background 2020
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	8845	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2457	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2457	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2457	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
~~Analysis Year:~~	~~Background 2020~~
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	9164	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2546	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	3394	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3394	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Background 2020
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	6915	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1921	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2561	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2561	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Background 2020
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	6807	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1891	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1891	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1891	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	63.0	mi/h
Number of lanes, N	4	
Density, D	30.0	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Crow Canyon / Bollinger Canyon
Jurisdiction:	
Analysis Year:	Background 2020
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	9158	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2544	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2544	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2544	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
Analysis Year:	Background 2020
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	10060	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2794	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	3726	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3726	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

I-680 BASIC FREEWAY SEGMENTS

2020 + Project

HCS2000: Basic Freeway Segments Release 4.1f

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
~~Analysis Year:~~	~~Background 2020 + Flex Retail~~
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	7833	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2176	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2901	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2901	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Background 2020 + Flex Retail
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	6782	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1884	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1884	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1884	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	63.1	mi/h
Number of lanes, N	4	
Density, D	29.9	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Norris Canyon/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Background 2020 + Flex Retail
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	9897	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2749	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2749	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2749	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	4	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	AM Peak
Freeway/Direction:	I-680 Southbound
From/To:	Bollinger Canyon/Alcosta Blvd
Jurisdiction:	
~~Analysis Year:~~	~~Background 2020 + Flex Retail~~
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	9252	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	2570	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	3427	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	3427	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Alcosta Blvd/Bollinger Canyon
Jurisdiction:	
Analysis Year:	Background 2020 + Flex Retail
Description:	Bishop Ranch 2

Flow Inputs and Adjustments

Volume, V	7130	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1981	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	2641	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	3	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	3.0	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	2641	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S		mi/h
Number of lanes, N	3	
Density, D		pc/mi/ln
Level of service, LOS	F	

Overall results are not computed when free-flow speed is less than 55 mph.

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Operational Analysis

Analyst:	DLL
Agency or Company:	DMJM Harris
Date Performed:	5/30/2007
Analysis Time Period:	PM Peak
Freeway/Direction:	I-680 Northbound
From/To:	Bollinger Canyon/Norris Canyon
Jurisdiction:	
Analysis Year:	Background 2020 + Flex Retail
Description: Bishop Ranch 2	

Flow Inputs and Adjustments

Volume, V	6931	veh/h
Peak-hour factor, PHF	0.90	
Peak 15-min volume, v15	1925	v
Trucks and buses	0	%
Recreational vehicles	0	%
Terrain type:	Level	
Grade	0.00	%
Segment length	0.00	mi
Trucks and buses PCE, ET	1.5	
Recreational vehicle PCE, ER	1.2	
Heavy vehicle adjustment, fHV	1.000	
Driver population factor, fp	1.00	
Flow rate, vp	1925	pc/h/ln

Speed Inputs and Adjustments

Lane width	12.0	ft
Right-shoulder lateral clearance	6.0	ft
Interchange density	0.50	interchange/mi
Number of lanes, N	4	
Free-flow speed:	Measured	
FFS or BFFS	65.0	mi/h
Lane width adjustment, fLW	0.0	mi/h
Lateral clearance adjustment, fLC	0.0	mi/h
Interchange density adjustment, fID	0.0	mi/h
Number of lanes adjustment, fN	1.5	mi/h
Free-flow speed, FFS	65.0	mi/h
	Urban Freeway	

LOS and Performance Measures

Flow rate, vp	1925	pc/h/ln
Free-flow speed, FFS	65.0	mi/h
Average passenger-car speed, S	62.6	mi/h
Number of lanes, N	4	
Density, D	30.8	pc/mi/ln
Level of service, LOS	D	

Overall results are not computed when free-flow speed is less than 55 mph.